

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY

(PCT Rule 66)

To:

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25. Feb. 2004

WV: / LF:

Date of mailing
(day/month/year)

23-02-2004

Applicant's or agent's file reference

50907 WO

REPLY DUE

within 60 days from
the above date of mailing

T404.
230404

International application No.

PCT/IB 2002/001228

International filing date (day/month/year)

22.04.2002

Priority date (day/month/year)

- - -

International Patent Classification (IPC) or both national classification and IPC

G10L 19/14

Applicant

Nokia Corporation et al

1. ☐ The written opinion established by the International Searching Authority:

☐ is

☐ is not

considered to be a written opinion of the International Preliminary Examining Authority.

2. This first (first, etc.) opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

PC: 230404
130404
100024 net

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3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is:

22.08.2004

Name and mailing address of the IEPA/SE

Patent- och registreringsverket
Box 5055
S-102 42 STOCKHOLM

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Authorized officer

Johanna Schyberg/mj

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WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

International application No. _____

PCT/IB 2002/001228□

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this opinion has been established on the basis of *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed.")*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ the claims:
- pages _____ as originally filed/furnished
- pages _____ as amended (together with any statement) under Article 19
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ the drawings:
- pages _____ as originally filed/furnished
- pages _____ received by this Authority on _____
- pages _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

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Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-27
	Claims	1
Inventive step (IS)	Claims	---
	Claims	1-27
Industrial applicability (IA)	Claims	1-27
	Claims	---

2. Citations and explanations:

Prior art

Reference is made to the following documents:

D1: Katugampala N. et al.: "A hybrid coder based on a new phase model for synchronization between harmonic and waveform coded segments", 'Electronic letters', vol. 2, May 2001, ISBN 0-7803-7041-4 article, pages 685 - 688

D2: WO 99 10 719 A1

D1 presents a hybrid coder with a new phase model to synchronise harmonic and waveform coded segments. Harmonic excitation is synchronised with the LPC (Linear Predictive Coding) residual by transmitting the location of the pitch pulse closest to the frame boundary and a phase value that represents the shape of the corresponding pitch pulse, see abstract of D1.

D2 states the general state of the art.

Statement of Reason

The formulation of claim 1 seems erroneous, as it refers to "said frame" three times. However, according to the description, two different frames are involved. Claim 1 also refers to "said parametric speech coding", which is not previously mentioned in the claim. Furthermore, claim 1 mentions neither that the invention is intended for hybrid speech coders, nor that the purpose of the invention is ensuring the phase continuity in transitions from frames coded with waveform coding to frames coded with parametric coding. Hence, claim 1 is considered unclear and erroneous. However, this opinion is based on claim 1, interpreted according to the description.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V.

The described invention discloses a method for ensuring phase continuity in transitions from a frame coded by a waveform matching coder to a frame coded using a parametric speech coder in hybrid speech coders. This is done by deriving characteristics for the end of the frame modelled by a waveform matching coder and using these while processing the hybrid coded frame. These characteristics may e.g. comprise the position of a last pitch pulse within said frame according to the waveform matching speech coding.

D1 addresses the problem of synchronisation between an LPC coded segment and a harmonic coded segment in a hybrid speech coder. It is well known to a person skilled in the art that LPC is an example of waveform coding and that a harmonic coded segment is an example of parametric vocoders. Hence, D1 affects the same problem as the claimed invention.

According to D1, the problem is solved by calculating the "Pitch Pulse Location" and the "Pitch Pulse Shape" of the LPC coded segment, which corresponds to a phase characterising parameter, as claimed in claim 1 of the application. D1 further states that this information is used for synchronising a harmonic coded segment.

To make the synchronisation as in D1 is equal to "obtaining characteristics of a frame coded according to a waveform matching speech coding; said frame according to a waveform matching speech coding being preceded in time according to said parametric speech coding" as claimed in claim 1, as in D1 the LPC residual occurs previously in time in relation to the harmonic coded segment.

Hence, the inventive concept of the claimed invention is in its entirety known from D1. Therefore, the invention claimed in claim 1 is not novel.

Claims 2-18 describe different exemplary embodiments for how the position and energy of the pitch may be used for synchronisation of differently coded frames in a hybrid speech coder. However, as the inventive concept is not novel, the design of such embodiments lies within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of claims 2-18 is also considered not to involve inventive step.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient:

Continuation of: V.

Claims 19-27 describe a corresponding software tool, computer program, communication terminal, terminal device, network device and system. These devices are also considered not to involve an inventive step, due to the reasons stated above.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The formulation of claim 1 seems erroneous, as it refers to "said frame" three times. However, according to the description, two different frames are involved. Claim 1 also refers to "said parametric speech coding", which is not previously mentioned in the claim. Furthermore, claim 1 mentions neither that the invention is intended for hybrid speech coders, nor that the purpose of the invention is ensuring the phase continuity in transitions from frames coded with waveform coding to frames coded with parametric coding. Hence, claim 1 is considered unclear and erroneous.